CLAIMS

1. A method for identifying proteins, to which a subject with cancer produces autoantibodies, said method comprising:

(a) extracting proteins from a sample of cells;

(b) separating the extracted proteins by two-dimensional electrophoresis;

(c) transferring the proteins separated by two-dimensional electrophoresis to a membrane;

(d) incubating the membrane with antiserum from a subject known to have the cancer;

(e) detecting the proteins to which autoantibodies in the patients serum have bound; and

(f) comparing the proteins to which antibodies in the subject's serum sample bind to proteins to which antibodies in control serum sample bind,

wherein those proteins bound by antibodies in the subject's serum but not the control serum are identified as proteins to which a subject with cancer produces autoantibodies.

2 The method of Claim 1 wherein the sample of cells is derived from the subject's tumor.

3. The method of Claim 1 wherein the sample of cells is derived from a continuous cell line representative of the subject's tumor.

4. The method of Claim 1 wherein the step of detecting the proteins to which autoantibodies in the subject's serum sample have bound comprises the use of a signal-generating component bound to an antibody that is specific for antibodies in the subject's sample.

5. A method for diagnosis and prognosis of cancer in a subject, comprising:

(a) obtaining a serum sample from a subject; and

(b) detecting the presence of autoantibodies specific for a protein identified using the method of Claim 1,

wherein the presence of autoantibodies indicates the presence of cancer.

6. A method for diagnosis and prognosis of cancer in a subject, comprising:

(a) obtaining a serum sample from a subject; and

(b) detecting the presence of autoantibodies specific for a β-tubulin isoform,

wherein the presence of autoantibodies specific for a β-tubulin isoform indicates the presence of cancer.

7. The method of Claim 7 wherein the subject is a neuroblastoma patient.

8. The method of Claim 7 wherein the presence of autoantibodies in the sample is measured by an immunoassay comprising:

(a) immobilizing a protein identified using the method of Claim 1 onto a membrane or substrate;

(b) contacting the membrane or substrate with a subject's serum sample; and

(c) detecting the presence of autoantibodies specific for the protein in the subject's serum sample,

wherein the presence of autoantibodies indicates the presence of cancer.

9. The method of Claim 8 wherein the immobilized protein is a β-tubulin isoform.

10. A method for diagnosis for the presence of cancer in a subject comprising, detecting in a sample of cells derived from said subject the expression of a protein identified using the method of Claim 1.

11. The method of Claim 10 wherein the expression of the protein identified using the method of Claim 1 is detected using an immunoassay.

12. The method of Claim 11 wherein the immunoassay is an in situ hybridization assay.

13. The method of Claim 11 wherein the immunoassay is an immunoprecipitation assay.

14. The method of Claim 11 wherein the protein is a β-tubulin isoform.

15. A method for stimulating in a subject an immune response specific for a protein identified using the method of Claim 1, comprising administering to said subject a composition containing said protein, in an amount sufficient to elicit an immune response.

16. A method for stimulating in a subject an immune response specific for a protein identified using the method of Claim 1, comprising administering to said subject cells from the immune system derived from said subject.

17. The method of Claim 1 wherein the protein is a β-tubulin isoform.

18. A composition comprising a protein identified using the method of Claim 1 and an acceptable carrier.

19. A composition containing an antibody that immunospecifically binds to a protein identified using the method of Claim 1.

20. The composition of Claim 18 wherein the antibody is conjugated to a signal-generating compound.

21. The composition of Claim 18 wherein the antibody is conjugated to a cytotoxic reagent.